Restoration Advisory Board Meeting Robins Air Force Base

September 11, 2003

Theme:
Update on Remediation Systems

Welcome and Program Introduction

Mr. Steve Coyle

Installation Co-Chair

Terms Used

- Air Sparge (AS) – Forcing ambient air into the subsurface below the water table to remediate dissolved volatile organic compounds (VOCs) in the groundwater
- Biosparge – Low flow air sparge that enhances natural bioremediation processes
- Carbon Adsorption – Removing VOCs from emissions using activated carbon to adsorb the VOCs. VOCs are attracted to the activated carbon and will attach to the carbon particles
- Deep Vacuum Extraction (DVE) – Applying a vacuum in the soils above the groundwater table to remove VOCs using horizontal wells
- JP – Jet petroleum (normally types 4 and 8 are jet fuels used at Robins)

Terms Used

- POL – Petroleum, oil, and lubricants
- Solid Waste Management Unit (SWMU) – A defined area recognized by Robins AFB and the regulatory agency where contaminants are being cleaned up
- Soil Vapor Extraction (SVE) – Applying a vacuum in the soils above the groundwater to remove VOCs using vertical wells
- Thermal Oxidation – Destroying VOCs in the emissions using clean burning processes (i.e. furnace)
- Volatile Organic Compounds (VOCs) – a class of chemicals that can be removed from groundwater by transfer to the vapor phase

BASE INDUSTRIAL REMEDIAL SYSTEMS UPDATE

Mr. David Fortune, CAPE
Environmental

11 September 2003

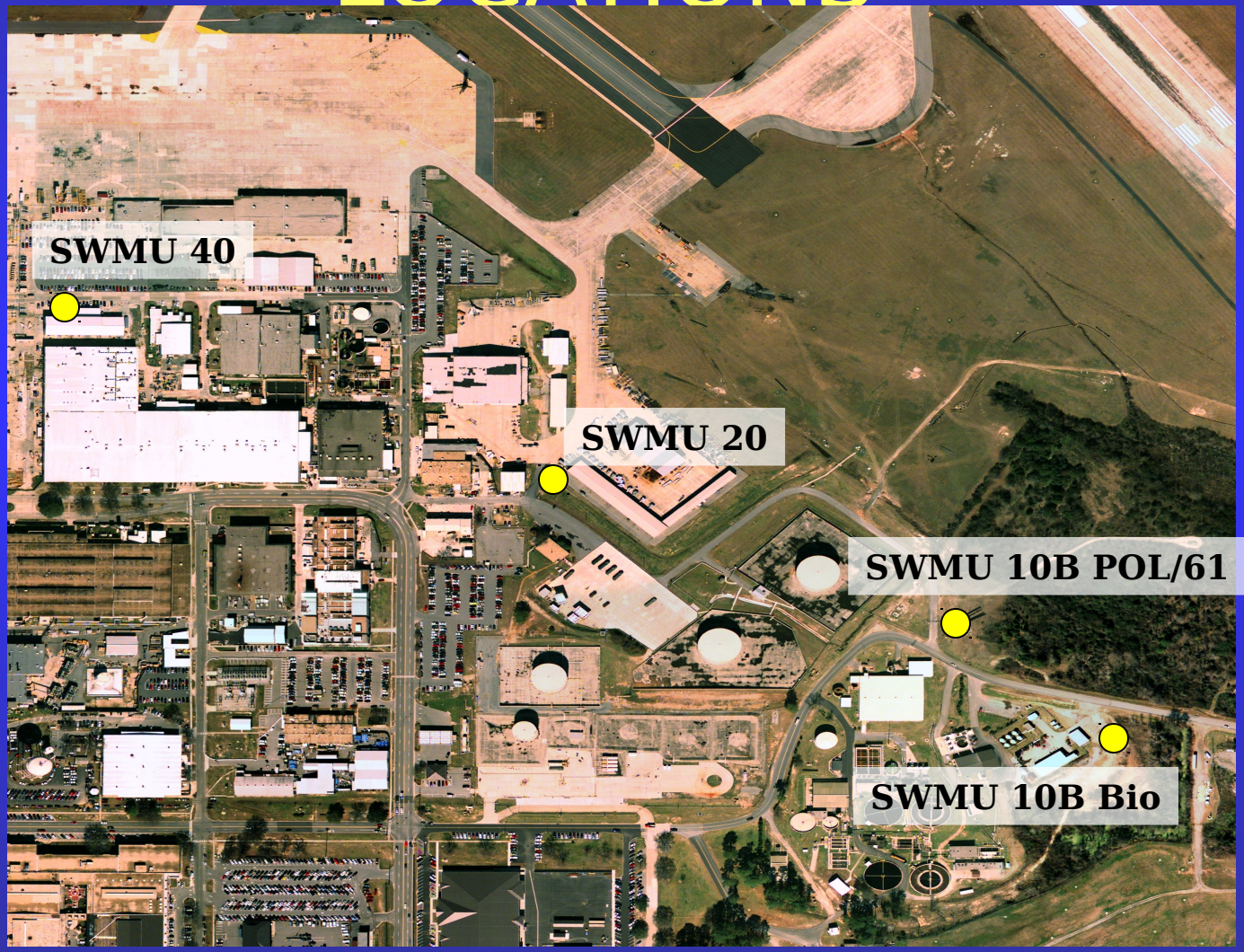
OVERVIEW

- Seven SWMUs Located in the Base Industrial Area
- Remedial Technologies
  - Air Sparge / Biosparge
  - Soil Vapor Extraction
  - Thermal Oxidation
  - Carbon Adsorption

SWMU SITE LOCATIONS

- SWMU 40 Machine Shop at Bldg 145
- SWMU 59 / 60 JP-8 Product Line Along Main Taxiways
- SWMU 20 Greater Base Industrial Area
- SWMU 10B JP-4 Spill Site B (POL and Biosparge)
- SWMU 61 JP-8 Product Line Near South End of Main Runway

EQUIPMENT PAD LOCATIONS



EQUIPMENT PAD LOCATIONS

SWMU 40
Machine Shop at Bldg 145

- Contaminant of Concern: Chlorobenzene
- Remedial Technology: SVE with Thermal Oxidation
- Installed Six Vertical SVE Wells and Two Horizontal SVE Wells

SWMU 40
Machine Shop at Bldg 145

SWMU 40 System

SWMU 40
Machine Shop at Bldg 145

SWMU 40 System

SWMU 40

Machine Shop at Bldg 145

SWMU 40 System

SWMU 40
Machine Shop at Bldg 145

SWMU 40 System

SWMU 59

JP-8 Product Line Along Main Taxiways

- Contaminant of Concern: Benzene
- Remedial Technology: AS / SVE with Thermal Oxidation
- Installed 25 AS / 20 SVE Wells
- Utilize Existing DVE System with Four Horizontal Wells

SWMU 59

JP-8 Product Line Along Main Taxiways

Air Sparge Blower

SWMU 59

JP-8 Product Line Along Main Taxiways

Air Sparge and DVE / SVE Flow Control

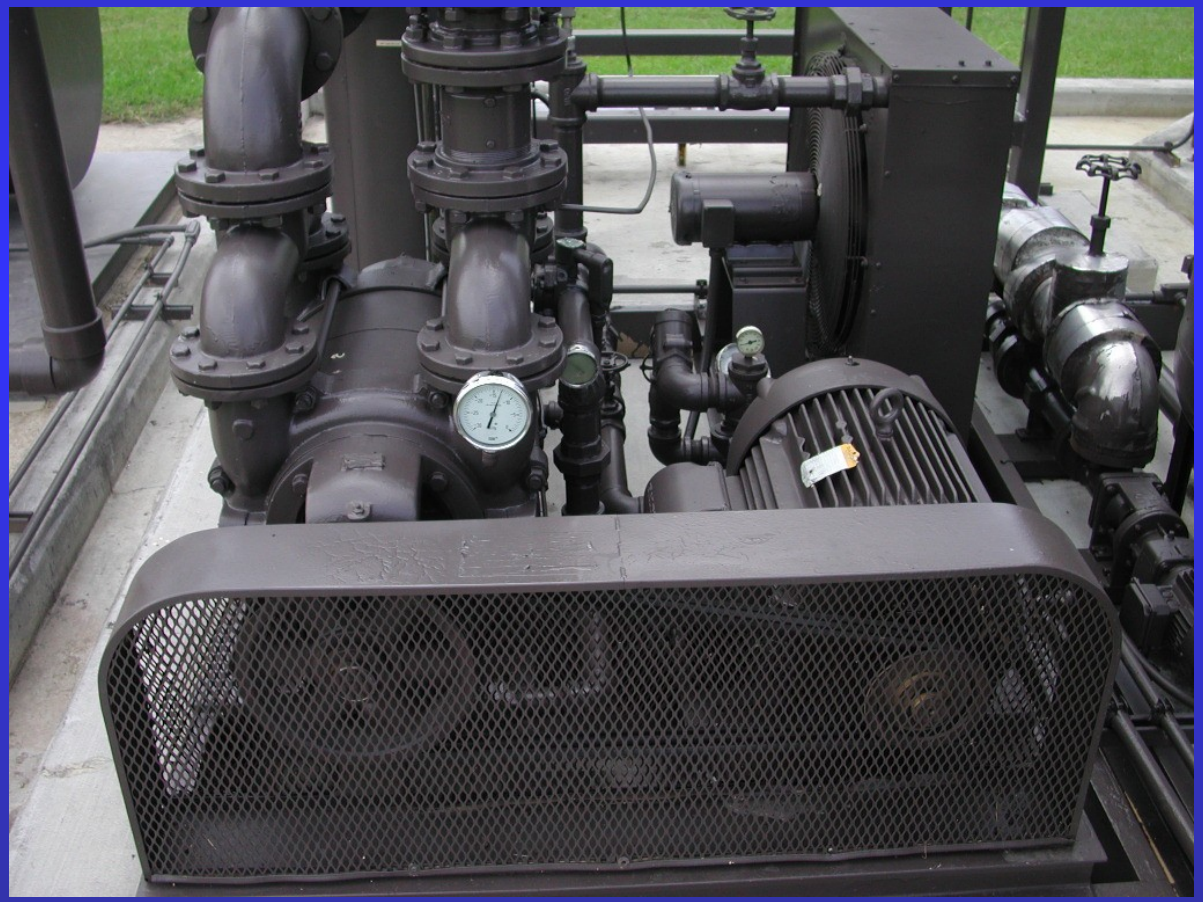
SWMU 59

JP-8 Product Line Along Main Taxiways

DVE / SVE / Thermal Oxidizer Compound

SWMU 59

JP-8 Product Line Along Main Taxiways



A Liquid Ring Pump – Belt Driven

SWMU 60

JP-8 Product Line Near Taxiways 2 and 3

- Contaminant of Concern: Benzene
- Remedial Technology: AS / SVE with Thermal Oxidation
- Installed 25 AS / 25 SVE Wells

SWMU 60

JP-8 Product Line Near Taxiways 2 and 3

Remediation System Compound

SWMU 60

JP-8 Product Line Near Taxiways 2 and 3

Thermal Oxidizer

SWMU 60

JP-8 Product Line Near Taxiways 2 and 3

System Control Panel

SWMU 60

JP-8 Product Line Near Taxiways 2 and 3

Air Sparge and SVE Flow Control

SWMU 60

JP-8 Product Line Near Taxiways 2 and 3

Air – Water Separator

SWMU 20
Greater Base Industrial Area

- Contaminants of Concern: Trichloroethylene, Petroleum Hydrocarbons
- Remedial Technology: AS / SVE with Carbon Adsorption
- Installed 13 AS Wells / 11 SVE Wells

SWMU 20

Greater Base Industrial Area

SVE Blower Unit and Control Panel

SWMU 20

Greater Base Industrial Area

Carbon Adsorption Units

SWMU 20
Greater Base Industrial Area

Instrumentation on SVE Blower Unit

SWMU 10B
JP-4 Spill Site B (POL)

- Contaminant of Concern: Benzene
- Remedial Technology: AS / SVE with Thermal Oxidation
- Installed 15 AS Wells / 25 SVE Wells

SWMU 10B

JP-4 Spill Site B (POL)

Air Sparge System with Compressor, Receiver and Control Panel

SWMU 10B

JP-4 Spill Site B (POL)

Thermal Oxidizer and SVE Blower

SWMU 10B

JP-4 Spill Site B (POL)

Thermal Oxidizer and SVE Blower – Another View

SWMU 10B
JP-4 Spill Site B (POL)

System Control Panel

SWMU 10B

JP-4 Spill Site B (POL)

SWMU 10B / 61 Compound

SWMU 61

JP-8 Product Line Near South End Main Runway

- Contaminant of Concern: Benzene
- Remedial Technology: AS / SVE with Thermal Oxidation
- Installed 13 AS / 11 SVE Wells

SWMU 61

JP-8 Product Line Near South End Main Runway

SVE System – Liquid Ring Pumps

SWMU 61

JP-8 Product Line Near South End Main

SVE System – Thermal Oxidizer and Liquid Ring Pumps

SWMU 61

JP-8 Product Line Near South End Main Runway

Air Sparge Blower

SWMU 10B

JP-4 Spill Site B (Biosparge)

- Contaminant of Concern: Benzene
- Remedial Technology: Biosparge
- Installed Four AS Wells

SWMU 10B

JP-4 Spill Site B (Biosparge)

Biosparge System

SWMU 10B

JP-4 Spill Site B (Biosparge)

Well Manifold with Rotometers, Pressure Gauges, and Solenoid Va

SWMU 10B

JP-4 Spill Site B (Biosparge)

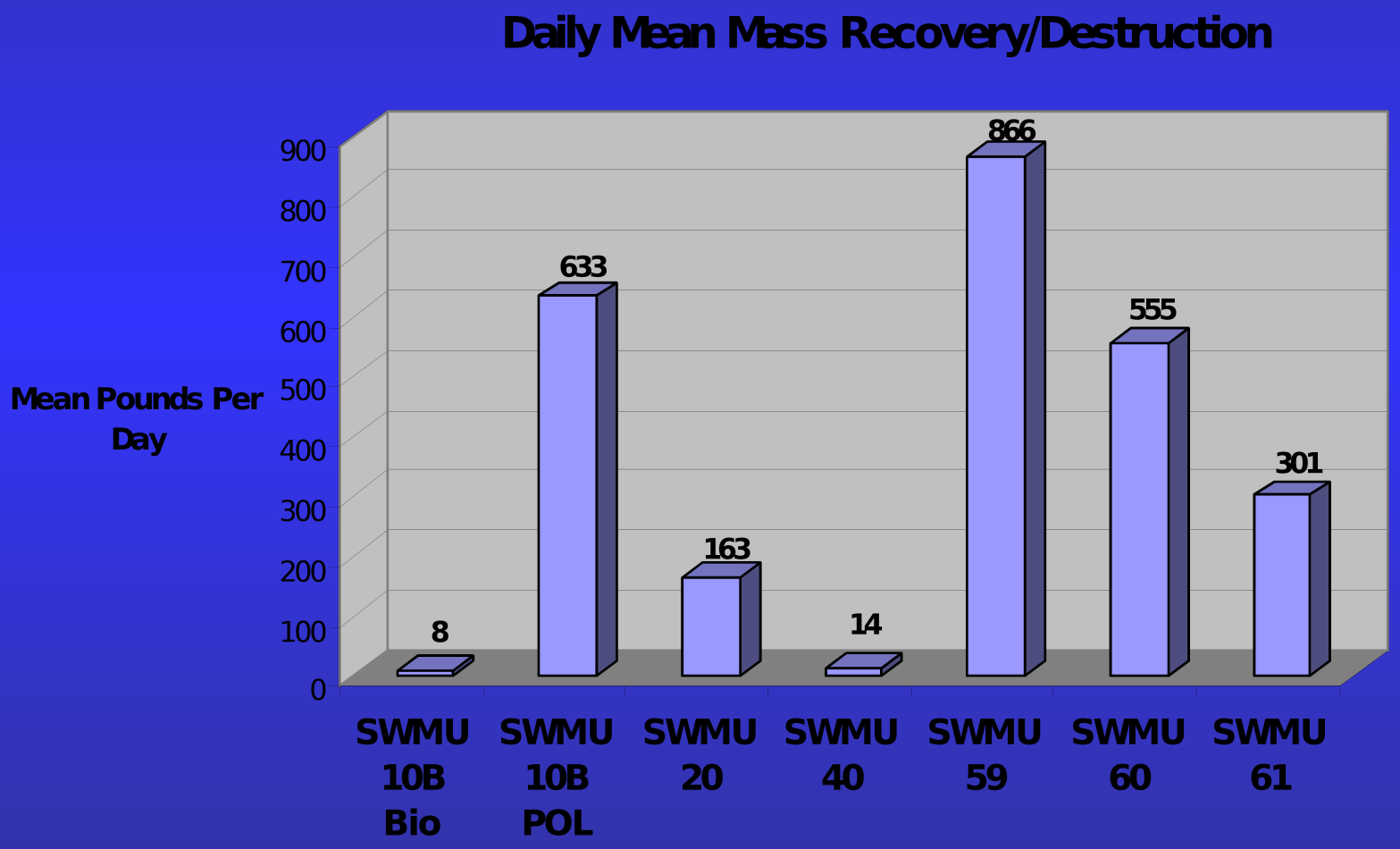
Sparge Control Panel

SWMU 10B

JP-4 Spill Site B (Biosparge)

Inside the Compressor

MASS REMOVAL DATA



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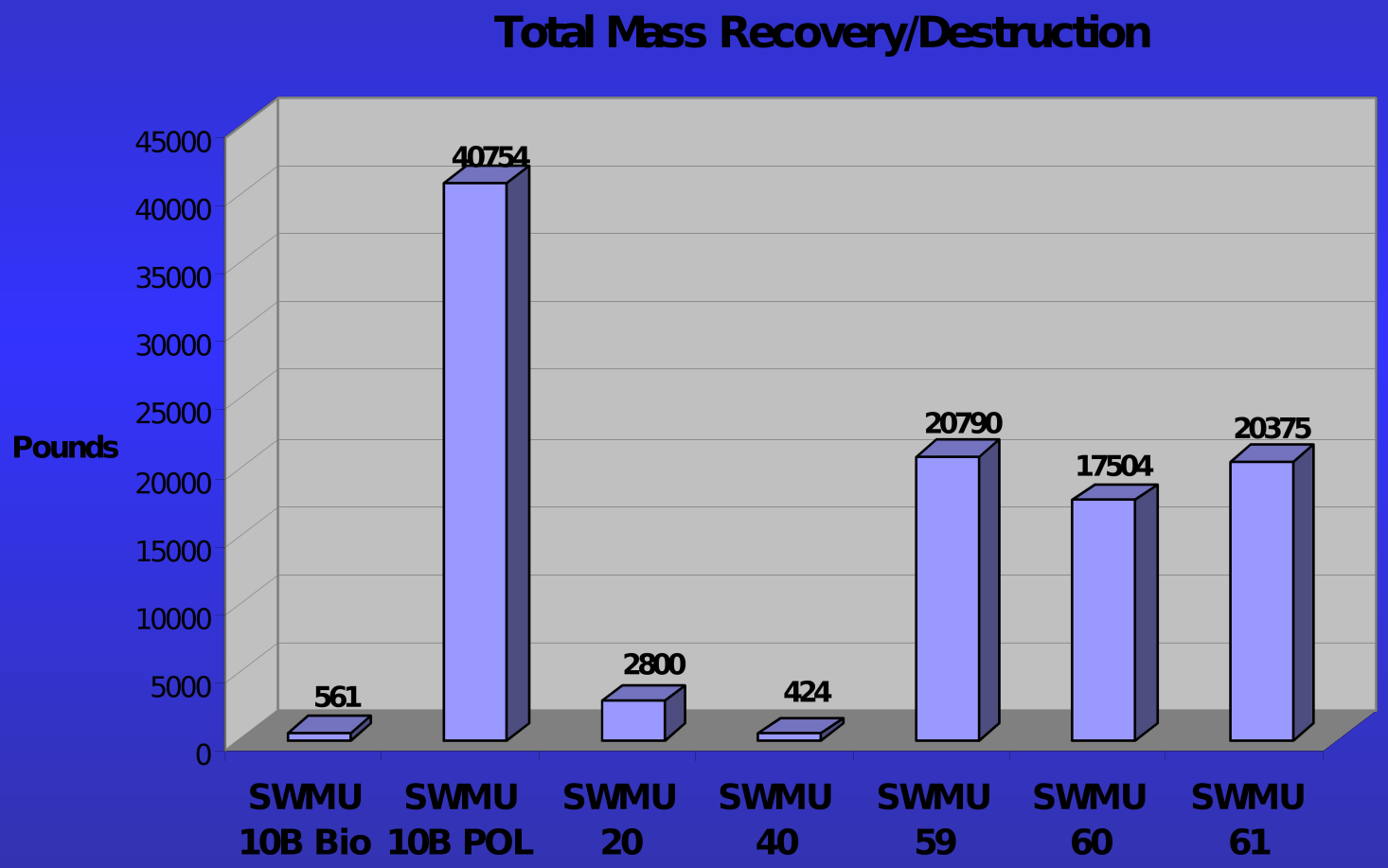


CONCLUSIONS

- Project completed with minimal disruption to base operations
- On schedule and within budget
- Clean-up projected between 5 and 15 years

Environmental Restoration Program (ERP) Update

Mr. Fred Hursey, WR-ALC/EMR

September 11, 2003

OVERVIEW

- 42 Total ERP Sites
  - 24 Sites have been closed
  - 4 Sites are Response Complete with no remaining action but not closed
  - 14 remaining sites undergoing some phase of remedial action
- 15 Projects Planned for FY04
- FY04 Budget Estimate - $6,762K

FY04 Projects

Total – 15 Projects $6,762K

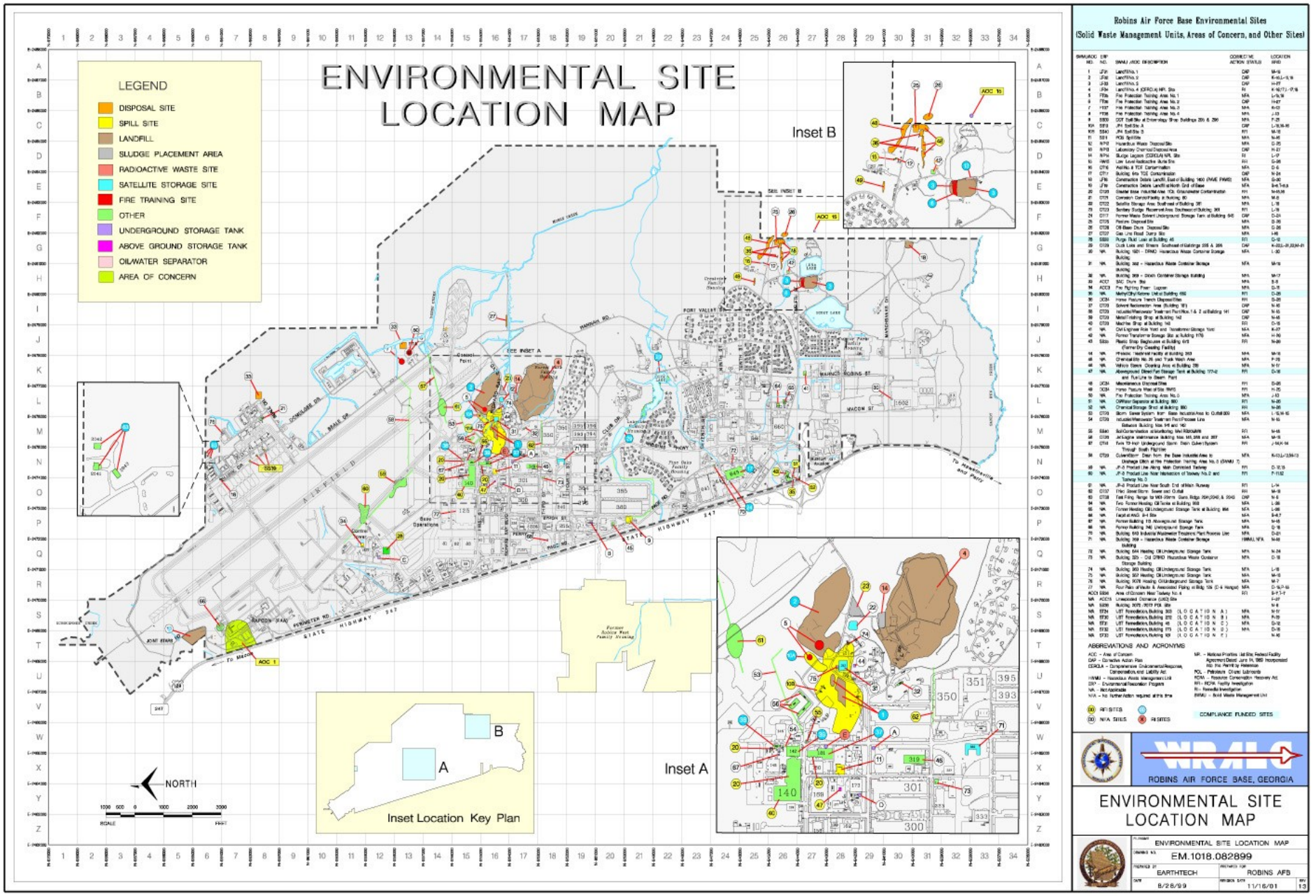
- Manpower – 1 Project $669K
- Travel, Supplies, Vehicles – 3 Projects $47K
- Management / Technical Support – 3 Projects $330K
- Remedial Operations – 6 Projects $5,686K
- Long Term Monitoring – 2 Projects $30K

FY04 ACTION

- 14 Sites require action next year
  - Horse Pasture – Performance Based Contract awarded 4th Qtr FY03 to reach NFA in 5 years
  - LF-04 – Remedial Action for OU2 Wetlands sediment removal
  - Sanitary Sludge Placement Area – Remedial Action to install cover
  - Duck Lake – Long Term Monitoring
  - JP-4 Spill Site B and Greater Base Industrial Area Sites – Remedial Operations for AS / SVE systems

FY04 ACTION

- 14 Sites require action next year (continued)
  - Building 2070 / 2072 POL Site – Remedial Operations (Free Product Recovery & Bioventing)
  - Building 922 AAFES Gas Station – Remedial Operations (Enhanced Bioremediation)
  - LF-03, Building 645 UST Site, Third Street Storm Sewer, Underground Storm Drain / Culvert System at Flightline – Remedial Operations (Pump & Treat)
  - LF-01 and LF-02 – Long Term Monitoring



Robins Air Force Base Environmental Sites

(Solid Waste Management Units, Areas of Concern, and Other Sites)

SWMU/AOC NO.	DRP NO.	SWMU /AOC DESCRIPTION	CORRECTIVE ACTION STATUS	LOCATION GRID
1	JF01	Landfill No.1	DRP	M-16
2	JF02	Landfill No.2	DRP	K-16,L-15,16
3	JF03	Landfill No.3	DRP	H-27
4	JF04	Landfill No.4 (CERCLA) NPL Site	RI	K-16(71)-17,16
5	FT05	Fire Protection Training Area No.1	NFA	L-15,16
6	FT06	Fire Protection Training Area No.2	DRP	H-27
7	FT07	Fire Protection Training Area No.3	NFA	K-13
8	FT08	Fire Protection Training Area No.4	NFA	J-23
9	SS00	SOT Spill Site at Entomology Shop Buildings 205 & 206	NFA	P-25
10	SS10	JP4 Spill Site A	DRP	L-15,16-16
11	SS40	JP4 Spill Site B	RFI	M-15
12	SS51	POL Spill Site	NFA	M-16
13	NP01	Hazardous Waste Disposal Site	NFA	O-25
14	NP02	Laboratory Chemical Disposal Area	DRP	H-27
15	NP04	Sludge Lagoon (CERCLA NPL Site	RI	L-17
16	HW05	Low Level Radioactive Burial Site	RFI	G-26
17	OT10	Asphalt & TCE Contamination	NFA	G-6
18	OT11	Building 949 TCE Contamination	DRP	M-24
19	LF06	Construction Debris Landfill, East of Building 1400 (FAVE PAVE)	NFA	G-30
20	LF07	Construction Debris Landfill at North End of Base	NFA	See Text
21	OT20	Disaster Area Industrial Area TCE Groundwater Contamination	RFI	M-15,16
22	OT21	Corrosion Control Facility at Building 80	NFA	M-18
23	OT22	Satellite Storage Area, Southeast of Building 281	NFA	L-18
24	OT23	Sanitary Sludge Placement Area Southeast of Building 300	RFI	L-16
25	OT17	Former Waste Solvent Underground Storage Tank at Building 640	DRP	D-24
26	OT25	Pesticide Disposal Site	NFA	H-26
27	OT26	Oil-Base Drum Disposal Site	NFA	G-26
28	OT27	Gas Line Road Dump Site	NFA	I-26
29	SS69	Purge Fluid Leak at Building 45	RFI	D-18
30	OT29	Duck Locks and Streams Southeast of Buildings 205 & 206	DRP	K-22(L-2),23,24-21
31	NA	Building 1921 - DRMO Hazardous Waste Container Storage Building	NFA	I-30
32	NA	Building 302 - Hazardous Waste Container Storage Building	NFA	M-19
33	NA	Building 309 - Drum Container Storage Building	NFA	M-17
34	ACC1	SAC Drum Site	NFA	E-8
35	ACC3	Fire Fighting Pond - Lagoon	NFA	D-19
36	NA	Methyl Ethyl Ketone Unit at Building 692	RFI	D-26
37	OT28	Inside Pressure Trench Disposal Sites	RFI	D-26
38	OT29	Solvent Reclamation Area (Building 181)	DRP	M-16
39	OT29	Industrial Wastewater Treatment Plant Nos. 1 & 2 at Building 141	DRP	M-16
40	OT29	Metal Finishing Shop at Building 140	DRP	M-16
41	OT29	Machine Shop at Building 140	RFI	D-19
42	NA	Civil Engineer Shop Yard and Transformer Storage Yard	NFA	K-27
43	NA	Former Transformer Storage Site at Building 1170	NFA	H-19
44	SS06	Plastic Shop Baghouses at Building 615 (Former Dry Cleaning Facility)	RFI	M-09
45	NA	Hydraulic Testbed Facility at Building 309	NFA	M-19
46	NA	Chemical Mix Bldg and Truck Wash Area	NFA	P-29
47	NA	Vehicle Steam Cleaning Area at Building 256	NFA	M-17
48	NA	Aboveground Diesel Fuel Storage Tank at Building 1774-2 and Fuel Line to Steam Plant	RFI	D-18
49	OT30	Miscellaneous Disposal Sites	RFI	D-26
50	OT31	Inside Pressure Trench (IPT)	RFI	F-25
51	NA	Fire Protection Training Area No.5	NFA	J-10
52	NA	Oil/Water Separator at Building 990	RFI	M-26
53	NA	Chemical Storage Shed at Building 990	RFI	M-26
54	OT29	Storm Sewer System from Base Industrial Area to Outfall 009	NFA	L-16,M-16
55	SS60	Industrial Wastewater Treatment Plant Process Line Between Building Nos. 141 and 140	NFA	M-16
56	SS60	Soil Contamination at Building 990 REMOVED	RFI	M-16
57	OT32	Jet Engine Maintenance Building Nos. 945, 946 and 947	NFA	M-18
58	OT34	Twin 72-Inch Underground Storm Drain Culvert System Through South Flightline	RFI	J-14,K-14
59	OT39	Culvert from the Base Industrial Area to Drainage Ditch at the Protective Training Area No.3 (SWMU 7)	NFA	K-10,L-13,14-13
60	NA	JP-8 Product Line along Connected Taxiway	RFI	D-10,11
60	NA	JP-8 Product Line Near Intersection of Taxiway No.2 and Taxiway No.3	RFI	F-11,12
61	NA	JP-8 Product Line Near South End of Main Runway	RFI	L-14
62	OT37	Misc. Street Storm Sewers and Outfall	RFI	M-18
63	OT38	Test Firing Range for M60 45mm Guns Bldgs 3541,3540, & 3545	NFA	M-8
64	NA	Two Former Heating Oil Tanks at Building 908	NFA	L-26
65	NA	Former Heating Oil Underground Storage Tank at Building 966	NFA	L-26
66	NA	Test pit at AOC 3 and Site	NFA	E-8,7
67	NA	Former Building 115 Aboveground Storage Tank	NFA	M-15
68	NA	Former Building 740 Underground Storage Tank	NFA	O-18
70	NA	Building 1400 Vehicle Washrack Treatment Plant Process Line	NFA	D-30
71	NA	Building 309 - Hazardous Waste Container Storage Building	HWMU/NFA	M-18
72	NA	Building 644 Heating Oil Underground Storage Tank	NFA	N-24
73	NA	Building 309 - Old DRMO Hazardous Waste Container Storage Building	NFA	O-18
74	NA	Building 360 Heating Oil Underground Storage Tank	NFA	L-18
75	NA	Building 307 Heating Oil Underground Storage Tank	NFA	M-18
76	NA	Building 3078 Heating Oil Underground Storage Tank	NFA	M-7
77	NA	Roof Drain of Vaults & Associated Piping at Bldg 10s (C-5 Hangar)	NFA	D-16,17-16
ACC5	SS64	Area of Concern West of Building No. 4	RFI	E-7,7-7
NA	ACC5	Unexploded Ordnance (UXO) Site	NFA	F-27
NA	SS09	Building 3075 /3078 POL Site	NFA	N-8
NA	ST01	UST Remediation, Building 300 (LOCATION A)	NFA	M-17
NA	ST02	UST Remediation, Building 270 (LOCATION B)	NFA	P-19
NA	ST31	UST Remediation, Building 270 (LOCATION C)	NFA	O-22
NA	ST32	UST Remediation, Building 173 (LOCATION D)	NFA	D-18
NA	ST33	UST Remediation, Building 109 (LOCATION E)	NFA	M-16

ABBREVIATIONS AND ACRONYMS

ACC - Area of Concern
DAP - Corrective Action Plan
CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act
HWMU - Hazardous Waste Management Unit
ERP - Environmental Restoration Program
NA - Not Applicable
NFA - No further action required at this time
NPL - National Priorities List Site; Federal Facility Agreement Dated June 14, 1990 Incorporated into the Permit by Reference
POL - Petroleum, Oil and Lubricants
RCRA - Resource Conservation Recovery Act
RFI - RCRA Facility Investigation
RI - Remedial Investigation
SWMU - Solid Waste Management Unit

(00) RFI SITES
(00) NFA SITES
(X) RI SITES

COMPLIANCE FUNDED SITES

WRALC
ROBINS AIR FORCE BASE, GEORGIA

ENVIRONMENTAL SITE LOCATION MAP

ENVIRONMENTAL SITE LOCATION MAP	
DRAWING NO.	EM.1018.082899
PREPARED BY: EARTHTECH	PREPARED FOR: ROBINS AFB
DATE: 8/28/99	REVISION DATE: 11/16/01
	REV: 13

CONCLUSION

- Progress
  - Only 3 sites without final actions in place
    - LF- 4 (Operable Unit 2), Sanitary Sludge Placement Area, Horse Pasture
  - Performance Based Contract for Horse Pasture will save $6M

CONCLUSION (continued)

- Vigilance
  - Increase focus on reaching site closure
    - Use of Performance Based Contracts
    - Remedial Process Optimization
  - Protect Base Mission
    - Restoration proceeds with no interference with Base mission
    - Accelerated clean-up schedules assure Base available for future missions

CONCLUSION (continued)

- Performance
  - On schedule to meet or exceed Air Force goals
  - Human Health and the Environment are protected
  - Positive results from Base / community / regulatory partnering
  - Award - winning

New Business and Program Closing

Mr. Steve Coyle

Installation Co-Chair

Next RAB Meeting
January 8, 2004